

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PRIMARY RECORD

Primary # ☐
HRI # ☐
Trinomial ☐
NRHP Status Code ☐

Other Listings ☐
Review Code ☐ Reviewer ☐ Date ☐

Page 1 of 4 Resource name(s) or number (assigned by recorder) N-210

P1. Other Identifier: Federal Aviation Administration; N.A.C.A. Flight Research; Flight Systems Research Laboratory

***P2. Location:** ☒ Not for Publication ☐ Unrestricted

***a. County** Santa Clara

***b. USGS 7.5' Quad** San Francisco North, Calif. **Date:** 1995

***c. Address** 650 Cooper Loop

City Moffett Field

Zip 94035

***e. Other Locational Data:**

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

Building N-210 was originally constructed as a large, high-ceiling hangar with two-story office extensions attached to the east and west walls. The original portions of the building are designed in simplified Art Deco style with unpainted, cast-in-place concrete exterior walls and paired, steel sash windows stacked vertically in bays, which are recessed from the wall planes in a series of shallow setbacks. The parapets have a shallow setback at the top. The main entrance is centered in the east elevation and projects slightly. The top of the entrance has a shallow, curved pediment, which steps down to the parapet line. The northwest corner of the building features cast concrete panels, which mimic window frames and mullions. The building's size is approximately 79,300 sq. ft.

An addition was constructed of cast-in-place concrete exterior walls with horizontal and vertical score lines, two rows of banded windows and exposed aggregate finish and ceramic tile surrounding the entrance on the east side of the south elevation. At the south façade of this addition is an entrance marked by a ceramic tile surround and concrete overhang. This building has been adaptively reused for aircraft flight simulators.

The building's interior has been remodeled several times over the years with the 1960 renovation being the most significant. This building appears to be in good condition. See Continuation Sheets for Technical Description.

***P3b. Resource Attributes:** (list attributes and codes) HP39 – Other: Hangar

***P4. Resources Present:** ☒ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other

P5a. Photo



P5b. Photo: (view and date)
View of North Façade (8/04/05)

***P6. Date Constructed/Age and Sources:** 1947

***P7. Owner and Address:**
United States of America as
represented by National Aeronautics
and Space Administration (NASA)

***P8. Recorded by:**
Page & Turnbull, Inc.
724 Pine Street
San Francisco, CA 94108

***P9. Date Recorded:** 08/04/05

***P10. Survey Type:**
Reconnaissance

***P11. Report Citation:** Lori Neff,
*Department of Parks and Recreation
– Historic Resources Inventory "Bldg.
N210, Flight Systems Research
Laboratory,"* (1995).

***Attachments:** ☐ None ☐ Location Map ☐ Sketch Map ☐ Continuation Sheet ☒ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (list)

BUILDING, STRUCTURE, AND OBJECT RECORD

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***NRHP Status Code 3CS**

***Resource Name or # N-210**

- B1. Historic name: Flight Operations Laboratory or Space Flight Simulation Lab
B2. Common name: Flight Systems Research Laboratory
B3. Original Use: Laboratory and hangar B4. Present use: Hangar, office, and laboratory

***B5. Architectural Style:** Art Moderne

***B6. Construction History:** (Construction date, alterations, and date of alterations)
1940 – Date of Construction: 1960 – Interior Alterations

*B7. Moved? ☒No ☐Yes ☐Unknown Date: Original Location:

***B8. Related Features:**

Significant architectural features include the concrete exterior, hangar doors, exterior concrete detailing (corbelled edges, speedlines, faux-windows, etc.), wood-sash hopper and fixed windows.

B9a. Architect: National Advisory Committee for Aeronautics (NACA) Engineers

***B10. Significance: Theme** Post-War Science and Space Exploration **Area** NASA Ames Research Center

| Period of Significance | 1940-1958 | Property Type | Research Facility/Hangar | Applicable Criteria | 1, 2 & 3 |
|------------------------|-----------|---------------|--------------------------|---------------------|----------|
|------------------------|-----------|---------------|--------------------------|---------------------|----------|

(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity)

Building N-210 was one of the first buildings completed at the NASA Ames Research Center. Originally, it served as a research facility and airplane hangar and was the first building occupied on the site. Designed by NACA Engineers and the Center's first director, Smith DeFrance, Building N-210 originally housed administrative services and Ames' management until the construction of the Administration Building (N-200) in 1943. The building appears to be significant for its role in the discovery and exploration of the aeronautic sciences, early space exploration, and as one of the first buildings completed on the NASA Ames Research Center. The building also appears to be significant for its association with NACA (forerunner to NASA) director, Smith DeFrance. Additionally, the building's design and construction also appears to be of historical significance with its Art Moderne features, concrete detailing, and interior composition. This building possesses integrity of location, setting, materials, and association. As noted in prior evaluations, the major alterations to Building N-210 include: the infill of the interior hangar with offices and labs; the 1959 addition, which has been permanently attached to the building, thus obscuring the hangar from one end; and minor alterations to the building's exterior. Although the building does not appear to be individually eligible for listing in the National Register of Historic Places, it does appear to be individually eligible for listing in the California Register of Historical Resources because it still retains the main elements that convey its historical significance.

B11. Additional Resource Attributes: (List attributes and codes) (HP39) -- Research and Development Facility: (HP39) – Hangar

***B12. References:**

- Lori Neff, *Department of Parks and Recreation – Historic Resources Inventory “Bldg. N210, Flight Systems Research Laboratory,”* (1995). **See Additional References on DPR 523L.**

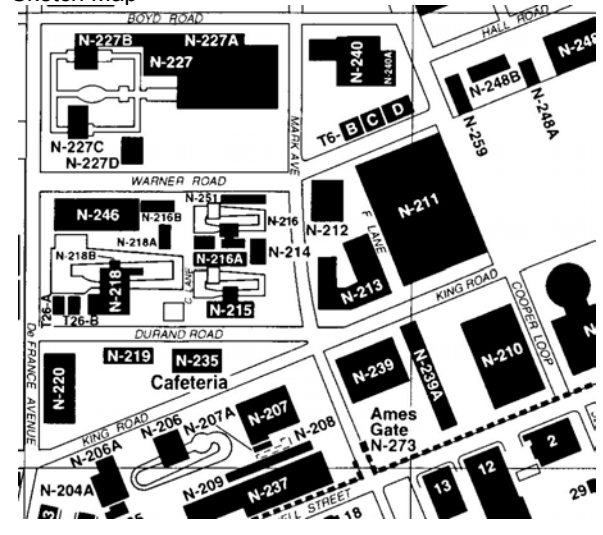
B13. Remarks:

In 1995, Facility Preservation Officer Richard M. Brown submitted the NASA Ames Research Center's Section 110 survey to the California State Historic Preservation Office (SHPO). On October 16, 1995, Cheryl Widdell of the California SHPO responded to Richard Brown about concerns with the eligibility of Building N-210 for listing in the National Register of Historic Places. Mr. Brown's memo cited the alterations to the building, which included the infill of the hangar space with offices and labs and the 1959 addition. The building was determined to have had alterations that have compromised the essential physical features that would make this building ineligible for the National Register.

***B14. Evaluator:** Rich Sucre, Page & Turnbull, Inc.
724 Pine Street, San Francisco, CA 94108

***Date of Evaluation:** 10/18/2005

(This space reserved for official comments.)



State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
CONTINUATION SHEET

Primary # _____

HRI # _____

Trinomial _____

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Resource Name or # N-210

*Recorded by Richard Sucré, Page & Turnbull

*Date 4/7/06

☒ Continuation

☐ Update

***B12. References (cont'd):**

- National Aeronautics and Space Administration, *Technical Facilities Catalog*, Volume 1, publication NHB 8800.5A (1), October 1974.
- Technical Information Division, Ames Research Center, *Ames Research Facilities Summary*, 1974.
- Donald D. Baals and William R. Corliss, *Wind Tunnels of NASA*, NASA SP-440, 1981.

8. THE SIX-DEGREE-OF-FREEDOM MOTION SIMULATOR

DESCRIPTION:

The Six-Degree-of-Freedom Motion Simulator is used to investigate the handling and general flying qualities of vertical rising aircraft particularly during take-off and landing. It has a single cockpit cab outfitted with stick-type flight controls. The cab is normally closed and is provided with a TV monitor, panel instruments, "force-feel" flight controls, and stereo cockpit sounds. However, the cab may be left open to provide a one-to-one simulation using the "real" world. Aircraft dynamics are provided by an EAI 8400 digital computer (32,000 word memory) and/or an EAI 231R analog computer used in the closed-loop mode.

DRIVES:

Ward-Leonard electrical servos
Torque motors drive through silent chains to rubber-faced sectors or to cable-pulling drums.

STATUS:

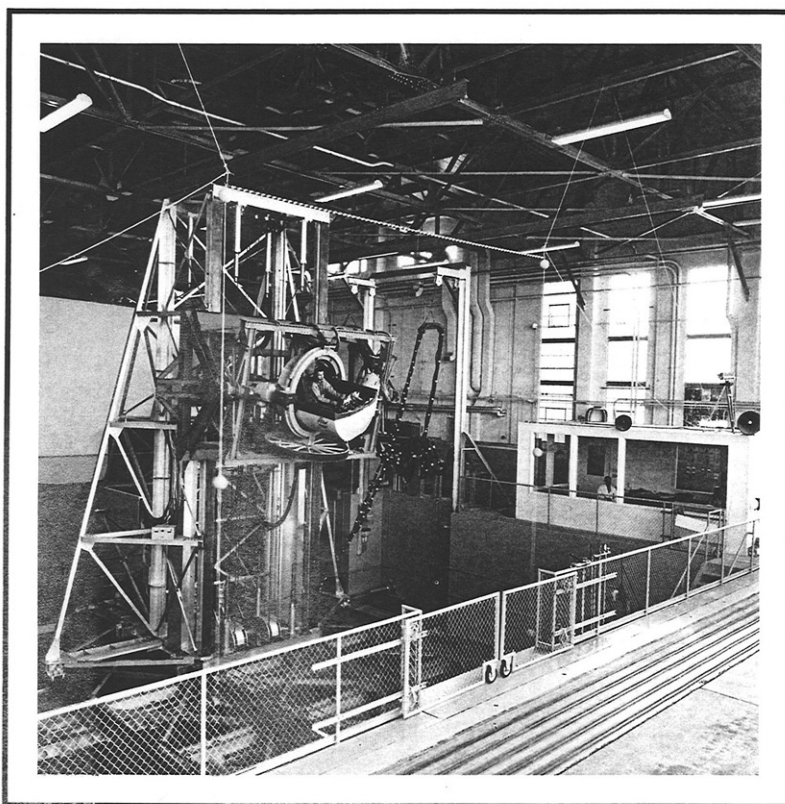
Operational since 1964

JURISDICTION:

Simulation Sciences Division
George A. Rathert, Jr.

LOCATION:

Building N-210



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Resource Name or # N-210

*Recorded by Richard Sucré, Page & Turnbull

*Date 4/7/06

☒ Continuation ☐ Update

1. MOVING-CAB TRANSPORT SIMULATOR

DESCRIPTION:

The Moving-Cab Transport Simulator is used to evaluate a wide range of aircraft for handling qualities and control system parameters under the conditions of approach, cruise handling and taxiing. Configured as a large transport-type cab, it is equipped for side-by-side pilot/copilot operation, and is frequently used in a dual-project mode with each side outfitted as a different aircraft. The cab is provided with virtual image TV displays for each pilot; panel, center and overhead instruments; programmable hydraulic "force-feel" flight controls; auto throttles; and stereo cockpit sounds. Aircraft dynamics are provided by an EAI 8400 digital computer (32,000 word memory) and/or an EAI 231R analog computer used in the closed-loop mode.

DRIVES:

Hydraulic servo (three linear actuators operated differentially or synchronized)

STATUS:

Operational since 1963

JURISDICTION:

Simulation Sciences Division
George A. Rathert, Jr.

LOCATION:

Building N-210

